What is claimed is:

1) **A semi-crystalline, largely isotropic, porous coal-based product produced from particulate coal of a small diameter, having a density of between about 0.1 and about ~~0.8g/cm3~~ 0.8g/km3 and a thermal conductivity below about ~~1W/m/°K~~ 1W/m/°K.**

2) **The porous coal-based product of claim 1 having a compressive strength below about 6000 psi.**

3) **The porous coal-based product of claim 1 that has been carbonized.**

4) **The porous coal-based product of claim 1 that has been graphitized.**

5) **A method for producing a porous coal-based product from coal comprising:**

   A) **comminuting coal to a small particle size to form a ground coal;**

   B) **placing said ground coal in a mold;**

   C) **heating said ground coal in said mold under a non-oxidizing atmosphere to a temperature of between about ~~300°C and about 700°C~~ 300°C and about 700°C and soaking at this temperature for a period of from about 10 minutes to about 12 hours to form a preform; and**

D) controllably cooling said preform.

6) The method of claim 5 wherein said inert atmosphere is applied at a pressure of from about 0 psi up to about ~~500psi.~~ 500 psi

7) The method of claim 5 wherein said temperature is achieved using a heat-up rate of between about ~~1°C to about 20°C~~ 1°C to about 20°C per minute.

8) The method of claim 5 wherein said controlled cooling is accomplished at a rate of less than about ~~10°C/min to a temperature of about 100°C.~~ 10°C/min to a temperature of about 100°C

9) The laminated sheet product of claim 8 wherein said material is selected from the group consisting of aluminum, steel, polymer sheet, inconel, titanium, refractory metals, fiber reinforced polymer sheet and paper.

10) The laminated sheet product of claim 8 wherein said sheet core has been carbonized.

11) The laminated sheet product of claim 8 wherein said sheet core is graphitized.